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First record of oviposition event by *Laemanctus longipes* (Sauria: Corytophanidae) in Mexico

Primer reporte de puesta de huevos de *Laemanctus longipes* (Sauria: Corytophanidae) en México

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ABSTRACT
Oviposition in elusive reptiles has been poorly documented due to the difficulty in observing it in natural habitats. Here, we document the first egg-laying record in the Eastern Casque-headed Basilisk *Laemanctus longipes* in the wild. Our record adds novel information about the oviposition of this scarcely studied reptile species.

Key words. Egg laying, elusive species, Eastern Casque-headed Basilisk, smooth casque-headed basilisk.

RESUMEN
La oviposición en especies elusivas de reptiles ha sido escasamente registrada en vida libre debido a la dificultad para observarla. En este trabajo documentamos por primera vez un evento de puesta de huevos en vida libre del toloque verde *Laemanctus longipes* en el centro del estado de Veracruz, México. Este registro agrega información novedosa sobre la oviposición de esta especie de reptil poco estudiada.

Palabras clave. Puesta de huevos, especies elusivas, toloque verde, lemacto coludo.

Oviposition behavior in elusive reptile species has been poorly recorded due to the difficulty of field observation (Campbell 1998). The genus *Laemanctus*, which includes two species, is distributed from Mexico to Central America, including the countries of Belize, Guatemala, Honduras, and Nicaragua (McCranie and Köhler 2004, Köhler 2008) and is one of the less diverse genera of casquehead basilisk in America (Flores-Villela *et al*. c2013). This genus is currently considered a member of the family Corytophanidae, which is composed of three genera *Basiliscus*, *Corytophanes* and *Laemanctus* (Campbell 1998). In Mexico and Central America, *Laemanctus* species present restricted geographical distributions (Köhler 2008). In Mexico, the Eastern Casque-headed Basilisk (*Laemanctus longipes* Wiegmann, 1834) inhabits in the state of Veracruz on the Gulf of Mexico slope as well as on the Isthmus of Tehuantepec on the Pacific slope (Flores-Villela *et al*. c2013). This species occurs in an altitudinal range from sea level to about 1200 m (McCranie and Köhler 2004). By the International Union for the Conservation of Nature (IUCN) on its red list *L. longipes* is considered as least concern (LC), and is classified as under special protection (Pr) on the official

Mexican list NOM-059-SEMARNAT-2010 (Flores-Villela *et al*. c2013). Despite restricted range of distribution, little is known about its reproductive behavior. The scant information that exists regarding its reproductive behavior indicates that the breeding season begins in spring or early summer between May and July (Lee 1996). *Laemanctus* females produce a clutch of 4-9 eggs that hatch after only two months at an incubation temperature that ranges from 28 to 30 °C (Köhler 2008). During oviposition, the female digs a small hole close to the base of a tree in which she deposits eggs, covering them later (Campbell 1998).

On 19 May 2016, we located a female Eastern Casque-headed Basilisk ovipositing in the soil (Fig. 1). This occurred near the end of the dry season at El Aguacero Ranch in the Municipality of Emiliano Zapata, in the central part of the State of Veracruz, Mexico (19°30'30.03" North, 96°50'29.8" West, WGS84, 1142 m a.s.l). Vegetation in the study area is dominated by remnants of secondary tropical dry and cloud forest. The female *L. longipes* was observed digging a shallow hole 10 x 4 x 4 cm (length x width x depth) at approximately two meters from the base of an *Acacia farnesiana* (L.) Willd. tree, where she deposited six eggs that we did not measure to avoid interference with the oviposition event (Fig. 1a). After depositing them, the female used her front legs to cover the eggs with soil and grass litter (Fig. 1b). We also observed that the female touched one of the eggs with the tip of her snout eleven times, probably to accommodate the remaining eggs before completely covering them (https://youtu.be/D9wIu5S44KQ). The small hole where the clutch was oviposited consisted of black soil and little stones covered with grass litter (Fig. 1). At the oviposition, the ambient and soil temperature registered were 31 and 33 °C, respectively. On the site of deposition, tree cover is dominated by *A. farnesiana* trees and the floor with garden grass (Fig. 1). The Eastern Casque-headed Basilisk still remains one of the least-studied reptile species in Mexico. Given the scant records of the species in the wild, this study documents for the first time its egg-laying behavior and constitutes the first reproductive information for the species in Mexico.

The herein described record of number of eggs corresponds to the few previous studies. Although we could not measure egg size, clutch size and egg dimensions seem to fall within the ranges specified for *L. longipes* by Campbell (1998). An interesting feature of this lizard's egg-laying behavior was the fact that the female touched one of the eggs eleven times. This behavior has not been previously described in the literature, and it is likely that the female does so to accommodate the remaining eggs in the shallow nest where these lizards deposit its eggs.

Another interesting feature of this lizard's egg laying was the date on which the event occurred. This event represents the second egg laying for this species recorded during the early wet season. The first was made by Stafford and Mallory (2002), who reported oviposition of *L. longipes* in Belize in the month of April. Campbell (1998) indicates that this species lays eggs from June to September. Both authors suggest the possibility of an extended breeding season and the production of more than one clutch per year in some females (Campbell 1998, Stafford and Mallory 2002).

This record helps to fill an information gap regarding the reproductive behavior of this scarcely studied reptile species. Although it is currently facing no major threats, increased urban growth and land use changes in the mountainous region of central Veracruz will probably become a significant threat in the future. New studies are required to determine the extent of its presence in anthropic landscapes.

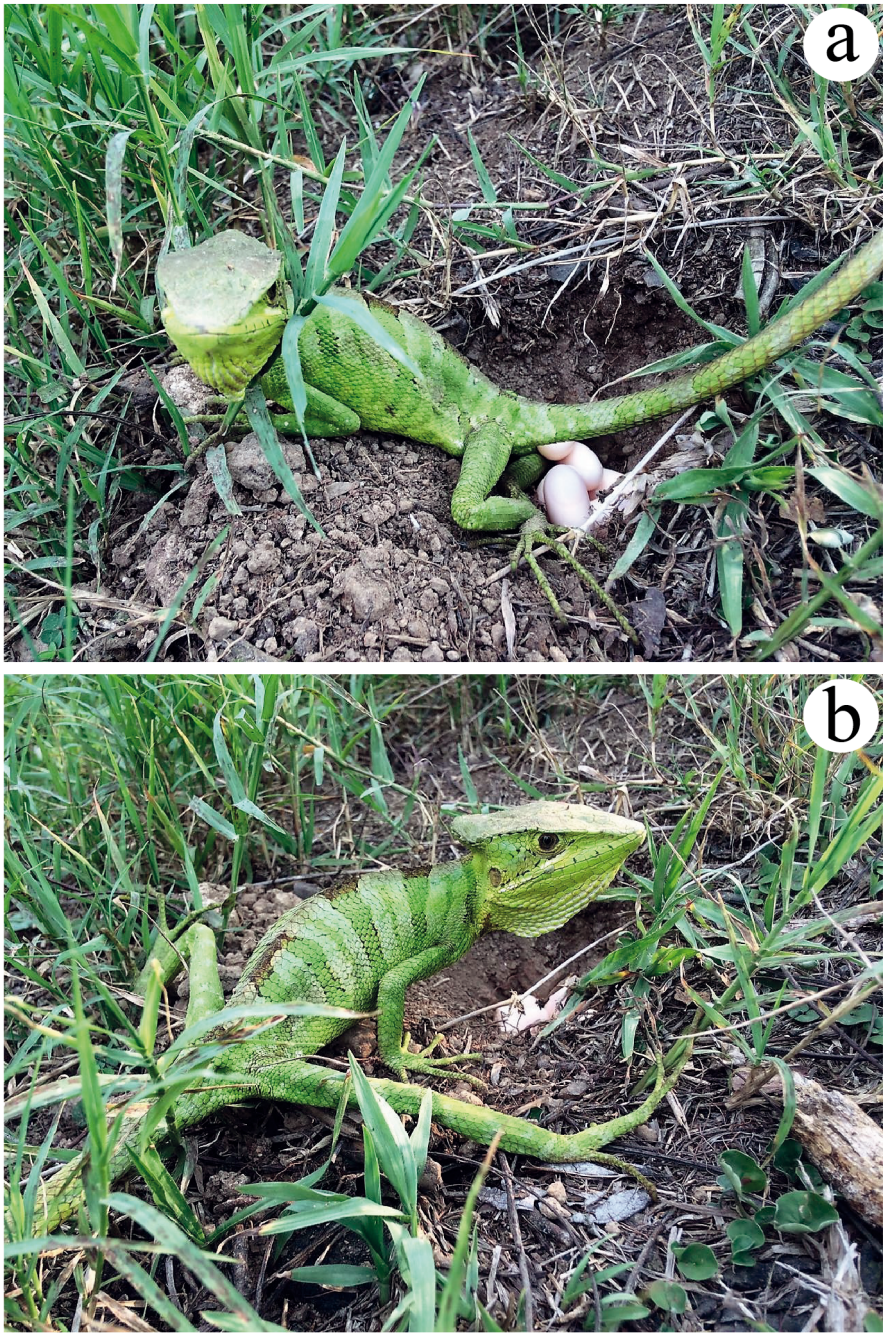

Figure 1. Female Eastern Casque-headed Basilisk *Laemanctus longipes* **a**. during oviposition; **b**. after covered the eggs with soil.

AUTHOR'S CONTRIBUTION

AGZ and SSL documented the study; AGZ, SSL, CADA, and EABS wrote the first draft of the manuscript. All authors contributed critically to the drafts.

CONFLICT OF INTEREST

The authors declare that there is no conflicts of interest.

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